COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN INQUIRY INTO KENTUCKY'S PRESENT AND FUTURE ELECTRIC NEEDS AND THE ALTERNATIVES FOR MEETING THOSE NEEDS	)))	ADMINISTRATIVE CASE NO. 308

O R D E R

On October 9, 1986, the Commission issued its Order establishing this inquiry for the purpose of assuring ratepayers that all reasonable alternatives for the provision of a reliable, low-cost supply of electricity are being carefully considered. To accomplish this, the Commission established a task force consisting of representatives from the major electric utilities, various consumer groups, the Attorney General of Kentucky and the Commission's Staff. The primary role of the task force was to prepare a draft comprehensive planning regulation. Since its inception, the task force has met several times to discuss, among other matters, draft regulations proposed by the utilities and Kentucky Industrial Utility Customers, a group of large industrial customers intervening in this matter.

On January 27, 1988, the Staff and ICF Incorporated ("ICF"), a consulting firm hired to assist the Commission in its efforts in this case, distributed a draft regulation to the task force members. Comments received by the Commission from the task force members on the Staff's draft regulation revealed significant philosophical differences between the utilities and the other task

force members regarding an integrated resource planning regulation. In order to resolve these differences, the Commission requested that separate meetings be held, one with the utilities and another with the other task force members, to allow the parties to openly express their concerns. The meetings helped to clarify the parties' positions, however it became apparent that no consensus could be reached between the two groups.

The Commission later met with its Staff and ICF to review the minutes of these meetings and to discuss the parties' comments on the Staff's proposed regulation. Based upon this review of the parties' comments and discussions, the Commission believes that a phased approach to the development of an integrated resource planning regulation is the most appropriate, and in the long run, the most expedient means by which to implement this process. Not only will this approach allow all parties to become sufficiently acclimated to the various processes and procedures, it will also allow the Commission an opportunity to monitor and assess the development of the regulation. Furthermore, the Commission recognizes the importance of the participation of all parties in the review and ultimate implementation of a planning regulation. Therefore, all parties will be requested to submit comments on the Commission's plan as detailed in the following paragraphs.

It is the Commission's intent to develop a detailed and formal reporting, review, and approval process regarding the development of electric utility forecasts and resource plans as well as the implementation of the plans. It is the Commission's current plan to institute this review process over a period of

several years in order to give the state's utilities time to develop the data and models necessary to fully comply with the regulation's intended purpose.

To accomplish this, the Commission intends to implement the review and evaluation process in three phases. The first phase is characterized by: (1) general information reporting requirements necessary at a minimum for the Commission to review individual plans and to compile and develop a statewide perspective on electric utility resource plans; and (2) review procedures which include formal conferences, limited hearings, and reports of the Commission's findings. The Commission will issue reports summarizing each electric utility's load forecast and resource plan and making a number of findings on each company's filing. These findings will relate to the adequacy of the company's response to the filing and reporting requirements of the regulation.

The attached regulation (Appendix A) is intended to govern the first phase of the review process for at least 2 years. Within this phase, and concurrent with the review of utility filings, the Commission will consider the adequacy of the reporting requirements and the effectiveness of the review procedures. Amendments and revisions to the regulation will be considered, possibly expanding the scope of the filing requirements, and detailing specific reporting requirements. The review process may also be refined, but will maintain the non-binding nature of the Commission's suggestions and recommendations. Based upon these considerations, the Commission

may issue a revised regulation that will govern the process for at least 2 additional years. The issuance of a revised regulation or a decision that a revision is unnecessary initiates the second phase.

The second phase will be characterized by greater disaggregation and detail of the information filed and the analyses supporting the filings. Specifically, it is planned that in the second phase, utilities will file more detailed and disaggregated information on the following: load forecasts; the penetration and effectiveness of conservation and load management programs; the financial and operating characteristics of existing and planned resources; and uncertainties affecting the utility's ability to acquire and develop the resources proposed in the plan.

During the second phase, the Commission will consider further the adequacy of the reporting requirements. The goal will be to establish reporting requirements sufficient to allow independent evaluation of each utility's load forecast and resource assessment and acquisition plan leading to a third phase of implementation of the regulation. Additionally, the Commission will develop formal procedures for a detailed evaluation leading to approval or disapproval of each electric utility's load forecasts and resource plans. These procedures may involve evidentiary hearings and Commission Orders. Based upon these considerations, the Commission will then issue a revised regulation governing the subsequent filings of integrated resource plans. The issuance of a revised regulation initiates the third phase.

The third phase establishes formal relationships between a utility's approved resource plan and applications for a certificate of public convenience and necessity and for rate changes. This final phase may be characterized by a requirement for a complete description of criteria and justification of the chosen resource plan; sensitivity analyses of the chosen resource plan; formalized criteria for Commission approval of the plan; and the requirement that any application of a certificate of public convenience and necessity or a rate change be consistent with a utility's most recently approved plan.

To aid in the determination of the reasonableness of its plan, the Commission is of the opinion and finds that all parties should file comments on the following issues and other related issues as deemed necessary:

1. The phased approach to the development of an integrated resource planning regulation in Kentucky.

2. The specific processes, procedures, and requirements embodied in the regulation attached as Appendix A.

The Commission has requested that ICF prepare general comments regarding the development and the implementation of the regulation. These comments will be provided to all parties of record.

IT IS THEREFORE ORDERED that:

1. All parties shall file comments on the findings herein and the draft regulation. The original and 15 copies of written comments shall be filed with the Commission, with a copy provided to all parties of record, within 60 days of the date of this

Order. Each party shall include with their comments the name of the witness who will be responsible for responding to questions relating to the information provided. Parties with similar interests may consider combining comments and representation.

2. A public hearing shall be held in the Commission's offices in Frankfort, Kentucky, beginning at 9:00 a.m., Eastern Daylight Time, on July 18, 1989, for the purpose of receiving comments and cross-examination from all parties and other interested persons.

Done at Frankfort, Kentucky, this 28th day of April, 1989.

PUBLIC SERVICE COMMISSION

Chairman

Vice Chairman

Commissioner

ATTEST:

Executive Director

APPENDIX A

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE COMMISSION DATED 4/28/89

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DRAFT REGULATION IN KENTUCKY PSC ADMINISTRATIVE CASE NO. 308

PUBLIC PROTECTION AND REGULATION CABINET

PUBLIC SERVICE COMMISSION

807 KAR 5:058 Integrated Resource Planning by Electric Utilities.

RELATES TO: KRS Chapter 278

PURSUANT TO: KRS 278.040(3), 278.310

NECESSITY AND FUNCTION: This regulation prescribes rules for regular reporting and commission review of load forecasts and resource plans of the state's electric utilities to meet future demands for electricity, assure an adequate and reliable supply of electricity at the lowest possible cost for all electric utility customers within their service areas, and satisfy all related state and federal environmental and other laws and regulations.

Section 1. General Provisions. (1) This regulation shall apply to electric utilities under the commission's jurisdiction except a city, a distribution cooperative, or distribution company with less than $10,000,000 annual revenue, that own, control, operate or manage any facility used or to be used for or in connection with the generation, production, transmission or distribution of electricity to or for the public, for compensation, for light, heat, power or other uses.

(2) Each electric utility shall file biennially with the commission an integrated resource plan. The plan shall include both historical and projected demand, resource and financial data, and other operating performance and system information as deemed appropriate, as well as a discussion of facts, assumptions, conclusions, and actions in the plan. Specific filing requirements are stated below.

Section 2. General Procedures for the Filing and Distribution of the Plan. (1) Each electric utility shall file its initial integrated resource plan with the commission during the year 1990 according to a schedule established by the commission. Subsequent to the initial filing, the utility shall file its integrated resource plan every two (2) years thereafter. Ten (10) copies of the plan shall be filed with the commission.

(2) Immediately upon filing of any subsequent integrated resource plan, each electric utility shall provide notice to intervenors in its most recently completed general rate case proceeding, that its plan has been filed and is available from the utility upon request.

(3) Immediately upon filing of any subsequent integrated resource plan, each electric utility shall provide notice to intervenors in the last integrated resource plan review proceeding, that its plan has been filed and is available from the utility upon request.

(4) Upon receipt of a utility's integrated resource plan, the commission shall establish a schedule of informal conferences and hearings to review that plan.

Section 3. Exemptions or Waivers. An electric utility may request an exemption from or waiver of requirements of specific provisions of this regulation. Such request shall be made ninety (90) days prior to filing the integrated resource plan. The commission will rule on the request at least sixty (60) days prior to the time of filing. The request shall clearly identify the provision from which the utility is seeking exemption or waiver and provide justification for the requested relief. The justification should include an estimate of costs and benefits of compliance with the specific provision. Notice of request for exemption shall be given in the manner provided in Sections 2(2) and (3).

Section 4. Format. (1) The integrated resource plan shall be clearly and concisely organized so that it is evident to the commission that the utility has complied with reporting requirements described in subsequent sections.

(2) Each plan filed shall identify individuals responsible for preparation of the plan. These individuals shall be available to respond to inquiries during the commission's review of the plan.

(3) Electric utilities may make joint filings for all or part of the requirements of this regulation. However, the information shall be stated separately for each utility as well as aggregated for joint filing, since the commission will review forecasts and plans for each electric utility individually.

(4) The commission may develop forms and formats for submission of information required under this regulation. Such forms and formats shall be forwarded to utilities in sufficient time prior

to filing. The commission will periodically review the adequacy and appropriateness of forms and modify them as deemed appropriate. When forms or formats are specified, the utility shall use them in preparing its plan.

Section 5. Contents. (1) Plan Summary. The plan shall summarize description and discussion of the utility's outlook for load growth and the resources planned to meet that growth. The summary shall include at a minimum:

(a) Description of the utility and its customers and service territory, its current facilities, and the utility's planning objectives;

(b) Description of models, methods, data and key assumptions used in developing the results contained in the plan;

(c) Summary of forecasts of energy and peak demand, and key economic and demographic assumptions or projections underlying these forecasts;

(d) Summary of the utility's planned resource acquisitions including, but not limited to: improvements in operating efficiency of existing facilities, demand-side programs, non-utility sources of generation, new power plants, transmission improvements, bulk power purchases and sales, and interchanges with other utilities;

(e) Steps being taken during the next two years to implement the plan;

(f) Discussion of key issues or uncertainties that could affect successful implementation of the plan.

(2) Significant Changes. Any integrated resource plan, subsequent to the initial plan, shall have a summary of significant changes from the last plan. This summary shall describe, in narrative and tabular form, changes in load forecasts, resource plan, assumptions or methodologies from the previous plan. Where appropriate, the utility may also use graphical displays to illustrate changes.

(3) Load Forecasts. The plan shall include historical and forecasted information regarding loads.

(a) The information shall be provided for the system total and, where available, disaggregated by the following customer classes:

1. Residential heating;
2. Residential non-heating;
3. Total residential (total of 1. and 2.);
4. Commercial;
5. Industrial;
6. Sales for resale;
7. Company use and other.

The company shall also provide data at any greater level of disaggregation available.

(b) The company shall provide historical information for the base year, which is the most recent calendar year for which actual energy sales and system peak demand data are available, and the four (4) years preceding the base year.

(c) The following historical information shall be provided:

1. Average annual number of customers by class as defined in Section 5(3)(a) above;

2. Recorded and weather-normalized annual energy sales and generation for the system, and sales disaggregated by class as defined in Section 5(3)(a) above;

3. Recorded and weather-normalized coincident peak demand in summer and winter for the system;

4. Total energy sales and coincident peak demand to retail and wholesale customers for which the company has firm, contractual commitments;

5. Total energy sales and coincident peak demand to retail and wholesale customers for which service is provided under an interruptible or curtailable contract or tariff or under some other non-firm basis;

6. Annual energy losses and estimated losses at time of summer and winter system peak demands for the system;

7. Identification and description of existing demand-side programs and an estimate of the impact of existing demand-side programs on utility sales and coincident peak demands including, but not limited to, utility and/or government sponsored conservation and load management programs;

8. Any other data or exhibits, such as load duration curves or average energy usage per customer, which illustrate historical changes in load or load characteristics.

(d) The company shall provide load forecast information for each of the fifteen (15) years succeeding the base year. For purposes

of this section, a base load forecast shall be required. The base forecast is the forecast considered most likely to occur. To the extent available, the company also shall file information for alternate forecasts representing lower and upper boundaries for the range of expected future growth of the load on the company's system.

Forecasts shall not include load impacts of additional, future demand-side programs and customer generation included as part of planned resource acquisitions reported in Section 5(4) below. Contributions of these programs and facilities to satisfy future customer demands for electricity shall be estimated separately and reported in Section 5(4)(d)1.vi. Forecasts shall, however, include the company's estimates of existing and continuing demand-side programs as described in Section 5(3)(e)4.

(e) The following information shall be filed for each forecast:

1. Annual energy sales and generation for the system and sales disaggregated by class as defined in Section 5(3)(b) above;

2. Summer and winter coincident peak demand for the system;

3. If available for the first two (2) years of the forecast, monthly forecasts of energy sales and generation for the system and disaggregated by class as defined in Section 5(3)(b) above and system peak demand;

4. The impact of existing and continuing demand-side programs on both energy sales and system peak demands, including but not limited to, company and government sponsored conservation and load management programs;

5. Any other data or exhibits which illustrate projected changes in load or load characteristics.

(f) Companies which regularly update their official company load forecasts, for example on an annual basis, shall file their updated forecasts with the commission when they are adopted by the company.

(g) The plan shall include description and discussion of methods, models, data, assumptions and judgments used in preparing load forecasts. Documentation should be explicit, detailed, and complete. Detailed technical discussions, descriptions, and supporting documentation shall be contained in a technical appendix.

The description and discussion shall include, but not be limited to:

1. All data sets used in producing the forecasts;

2. Key assumptions and judgments used in producing forecasts and determining reasonableness of forecasts;

3. General methodological approach taken to load forecasting (e.g., econometric or structural), and the model design, model specification, and estimation of key model parameters (e.g., price elasticities of demand or average energy usage per type of appliance);

4. Company's treatment and assessment of load forecast uncertainty;

5. Extent to which the company's load forecasting methods and models explicitly address and incorporate factors listed in Section 7(2)(b);

6. Research and development efforts underway or planned to improve performance, efficiency or capabilities of the company's load forecasting methods; and

7. Description of and schedule for efforts underway or planned to develop end-use load and market data for analyzing demand-side resource options including, but not limited to, load research and market research studies, customer appliance saturation studies, and conservation and load management program pilot or demonstration projects.

(4) Resource Assessment and Acquisition Plan. (a) The plan shall include the company's resource assessment and acquisition plan. This plan shall provide for an adequate and reliable supply of electricity to meet forecasted electricity requirements at the lowest possible cost. The plan shall consider the potential impacts of selected, key uncertainties and shall include assessment of potentially cost-effective resource options available to the company.

(b) The company shall provide a list of all options considered for inclusion in the resource assessment and acquisition plan, including:

1. Improvements to and more efficient utilization of existing utility generation, transmission and distribution facilities;

2. Conservation and load management or other demand-side programs beyond those already in place;

3. Expansion of generating facilities, including assessment of economic opportunities for coordination with other utilities in constructing and operating new units; and

4. Assessment of non-utility generation, including generating capacity provided by cogeneration, non-conventional technologies relying on renewable resources, and other non-utility sources.

(c) The following information regarding the company's existing and planned resources shall be provided.

1. Map of existing and planned generating facilities and transmission facilities with a voltage rating of 69 kilovolts or greater, indicating their type and capacity. This map also shall indicate locations and transfer capabilities of all interconnections with other utilities. In addition, the utility shall provide discussion of any known, significant limiting conditions which restrict transfer capabilities with other utilities.

2. List of all existing and planned electric generating facilities which the company plans to have in service in the base year or during any of the 15 years of the forecast period. The company shall provide a schedule including the following information for each existing and planned facility:

i. Plant name;

ii. Unit number(s);

iii. Existing or proposed location;

iv. Status (existing, planned, under construction, etc.);

v. Actual or projected commercial operation date;

vi. Type of facility;

vii. Net dependable capability, summer and winter;

viii. Entitlement if jointly owned or unit purchase;

ix. Primary and secondary fuel types, by unit and as applicable;

x. Fuel storage capacity; and

xi. Scheduled upgrades, deratings and retirement dates.

3. For each generating unit planned to be available during the base year or during any of the 15 years of the forecast period, the company shall provide the following actual and projected cost and operating information for the base year (for existing units) or first full year of operations (for new units) and the basis for projecting the information to each of the 15 forecast years (e.g., cost escalation rates). All cost data shall be expressed in nominal and real base year dollars.

i. Capacity and availability factors;

ii. Anticipated annual average heat rate;

iii. Costs of fuel(s) per millions of British thermal units (MMBtu);

iv. Estimate of capital costs for planned units (total and per kilowatt of rated capacity);

v. Variable and fixed operating and maintenance costs;

vi. Capital and operating and maintenance cost escalation factors;

vii. Projected average variable and total electricity production costs (in cents per kilowatt-hour).

4. Description of transactions for purchases, sales or exchanges of electricity which currently exist or which the company expects to enter into with other utilities during the base year or during any of the 15 forecast years of the plan.

5. Table and discussion identifying and describing existing and projected amounts of electric energy and generating capacity from cogeneration, self-generation, non-conventional technologies relying on renewable resources, and other non-utility sources available for purchase by the utility.

6. Information on existing and new conservation and load management or other demand-side programs included in the plan. For each program the company shall identify:

i. Targeted classes and/or end-uses;

ii. Expected life of the program;

iii. Projected energy reductions by season, and summer and winter peak demand reductions;

iv. Projected cost of each program, including any incentive payments and program administrative costs; and

v. Projected cost savings of each program including savings in company generation, transmission and distribution costs.

(d) The company shall describe and discuss its resource assessment and acquisition plan. The plan shall consist of resource options which produce adequate and reliable means to meet annual and seasonal peak demands and total energy requirements required by the base load forecast at the lowest possible cost.

1. The company shall provide the following information on total resource capacity available at the winter and summer peak, for the base year and for each year covered by the base forecast:

i. Forecast peak load;

ii. Capacity from existing resources before consideration of retirements;

iii. Capacity from planned utility-owned generating plant capacity additions;

iv. Capacity available from firm purchases from other utilities;

v. Capacity available from firm purchases from non-utility sources of generation;

vi. Reductions or increases in peak demand from new conservation and load management or other demand-side programs proposed in the plan;

vii. Committed capacity sales to wholesale customers coincident with peak;

viii. Planned retirements;

ix. Reserve requirements;

x. Capacity excess or deficit;

xi. Capacity or reserve margin.

2. The company shall provide the following information on planned annual generation for the base year and for each year covered by the forecast:

i. Total forecast firm energy requirements;

ii. Energy from existing and planned utility generating resources disaggregated by primary fuel type;

iii. Energy from firm purchases from other utilities;

iv. Energy from firm purchases from non-utility sources of generation; and

v. Reductions or increases in energy from new conservation and load management or other demand-side programs proposed in the plan; and

3. For each of the 15 years covered by the plan, the company shall provide estimates of total energy input in primary fuels by fuel type and total generation by primary fuel type required to meet load. Primary fuels shall be organized by standard categories (coal, gas, etc.) and quantified on the basis of physical units (e.g., barrels or tons) as well as in MMBtu.

(e) The resource assessment and acquisition plan shall include description and discussion of methods, models, data, assumptions and judgments used in preparing the resource assessment and acquisition plan. Detailes technical discussion, descriptions and supporting documentation shall be contained in a technical appendix.

Description and discussion shall include, but not be limited to:

1. General methodological approach, models, data sets and information used by the company;

2. Key assumptions and judgments used in the assessment and how uncertainty in those assumptions and judgments were incorporated into analyses;

3. Extent to which factors outlined in Section 8(2) were explicitly accounted for in the resource assessment;

4. Criteria (e.g., present value of revenue requirements, capital requirements, environmental impacts, flexibility, diversity) used to screen each resource alternative, and criteria used to select the final mix of resources presented in the acquisition plan;

5. Criteria used in determining the appropriate level of reliability and the required reserve or capacity margin, and

discussion of how these determinations have influenced selection of options; and

6. Research efforts and/or programs underway or planned which are directed at developing data for future assessments and refinements of analyses.

(5) Financial Information. The integrated resource plan shall include and discuss the following financial information:

(a) Present (base year) value of revenue requirements stated in dollar terms;

(b) Discount rate used in present value calculations;

(c) Nominal and real revenue requirements by year;

(d) Average system rates (revenues per kilowatt hour) by year; and

(e) Other financial results considered meaningful and appropriate.

Section 6. Report from the Statewide Perspective. (1) Upon receipt of all integrated resource plans for each filing year, the commission shall order preparation, either by commission staff or by a consultant, of a report which views the filings from the statewide perspective.

(2) The report shall compile and aggregate key information from the company specific filings.

(3) The report shall be completed and distributed to all parties of record in each integrated resource planning proceeding within 90 days of the date when all of the integrated resource plans have been filed.

Section 7. Factors to be Considered by the Commission in Reviewing the Load Forecasts. (1) The commission does not prescribe a particular methodology to be used in forecasting future loads. However, the methodology shall be fully described and discussed as set forth in Section 5(3).

(2) In its review of a company's load forecasting methodology, the commission will consider the following factors:

(a) Credibility of forecast results and appropriateness of methodology;

(b) Extent to which methodology considers the following factors in forecasting future electric loads:

1. Changes in prices of electricity and prices of competing fuels;

2. Changes in population and economic conditions in the company's service territory and general region;

3. Development and potential market penetration of new appliances and other equipment and technologies that use electricity or competing fuels;

4. Continuation of existing company and government sponsored conservation and load management or other demand-side programs; and

5. Other factors the company considers to be significant.

(c) Extent to which methodology uses data and develops forecasts sufficiently disaggregated to analyze impacts of existing conservation and load management programs and of conservation and load management or other demand-side programs proposed in the resource assessment and acquisition plan; and

(d) Extent to which methodology allows for the separate reporting of load impacts of company sponsored conservation and load management or other demand-side programs proposed in the resource acquisition plan.

Section 8. **Factors to be Considered by the Commission in Reviewing the Resource Assessment and Acquisition Plan.** (1) The commission does not prescribe a particular method to be used in screening resource options or in identifying the preferred resource acquisition plan. However, methodology shall be fully described and discussed as outlined in Section 5(4).

(2) In its review of the company's resource assessment and acquisition planning methodology, the commission shall consider whether:

(a) The methodology produces a resource acquisition plan which provides a reliable and adequate mix of resources to meet the base forecast load at the lowest possible cost;

(b) The methodology treats demand-side resource options (including conservation and load management), self-generation, cogeneration and other non-utility generation as resources and evaluates them in a manner consistent with utility generation and other resource options;

(c) The methodology considers the following factors:

1. Environmental and other related laws, regulations, and policies of state and federal government;

2. Financial impacts of the plan and the company's ability to finance acquisition of the proposed new resources;

3. Rate impacts of the proposed plan;

4. Other significant economic impacts;

5. Other strategic considerations including flexibility, diversity, size of commitments, and lead time of commitments;

6. All resources available to meet loads, including the purchase of capacity and energy from other utilities or producers, including sources not close to the utility's service territory;

7. Uncertainty in key assumptions and judgments underlying the plan; and

8. Economical opportunities for joint planning with other utilities for construction and operation of electric generation and transmission facilities.

Section 9. Procedures for the Review of the Integrated Resource Plan. (1) Subsequent to the filing of a company's integrated resource plan, the commission shall schedule one or more informal conferences to review the filed plan with the company, commission staff, and other interested parties. The purpose of the conference(s) are to discuss the plan's compliance with the regulation; to establish procedures for additional discovery, if necessary; to identify areas where there is agreement among parties; to identify and possibly resolve areas of disagreement among the parties; to develop a procedural schedule which allows parties to have reasonable discovery and to file testimony prior to a hearing; and to address other matters relative to plan review.

(2) A hearing shall be conducted within 150 days of the filing of the integrated resource plan. At the hearing, the company shall present its integrated resource plan. Any areas of

disagreement identified during the informal conference(s) discussed above shall also be addressed in this hearing.

(3) After hearing and based upon its review, the commission shall issue a report summarizing its review and offering suggestions and recommendations to the company for subsequent filings.

Section 10. Relationship of Integrated Resource Plan to an Application for a Certificate of Convenience and Necessity and to an Application to Change Rates. The company's integrated resource plan and the commission's report should be made part of the record, in part or whole, of any application for a certificate of convenience and necessity and to change rates.